

2003 Annual Report

National Athletic Trainers' Association Board of Certification

CASTLE Worldwide, Inc
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The National Athletic Trainers' Association Board of Certification (BOC) is an autonomous certification body whose three-part examination is used for the certification of athletic trainers throughout the United States. The Athletic Trainer Credential (ATC®) is recognized in lieu of licensure in many states and it is required for employment by virtually all employers. The BOC invests considerable resources each year to ensure the test is fair and appropriately rigorous, in accordance with standards and guidelines such as those of the American Educational Research Association, American Psychological Association, and the National Council on Measurement in Education (1999), National Commission for Certifying Agencies (2002), and National Skill Standards Board (2001). Included in this report are activities associated with the examination that were conducted between April 2003 and February 2004.

Role Delineation Study

The BOC conducts Role Delineation Studies at approximately five year intervals in order to ensure that the linkage between the practice of athletic training and the examination is current. Role Delineation is the process of defining the primary responsibilities of the entry-level ATC® credential holder, the essential tasks the ATC® credential holder performs, and the knowledge and skill the ATC® credential holder must possess in order to provide athletic training services in a competent manner. In November 2002, BOC's fifth role delineation study began with meeting of subject matter experts in athletic training in Denver, CO. The experts carefully delineated the tasks, knowledge, and skills associated with the role of the entry-level athletic trainer.

The BOC conducted a full scale validation study during the testing year 2003, collecting data from more than 1700 qualified ATC® credential holders throughout the United States. These individuals reported their evaluations of the importance, criticality, and relevance of the domains and tasks developed in 2002, as well as the point in the ATC® credential holder's career at which proficiency is required in the domains and tasks. The report of the validation study component of the Role Delineation Study, which includes a literature review and extensive bibliography, will be available from the BOC after its publication.

The Written, Simulation, and Practical Portions of the Examination

The ATC® credentialing examination is a broad assessment of knowledge and skill, addressing the complex knowledge and skill required for competent performance in the wide variety of settings in which athletic trainers work. The examination includes a written, multiple-choice examination of 140 scored items, a simulation examination made up of eight scored items, and a practical examination that includes from 12 to 15 problems. In order to achieve certification, candidates must pass each examination. These three components are designed to test whether a particular candidate has sufficient understanding of the principles, practices, and sciences underlying the practice of athletic training, whether or not a candidate for certification makes

decisions appropriately, and whether or not a candidate demonstrates the necessary level of skill in employing a wide variety of procedures and techniques.

The BOC held two meetings for each of the three examinations in 2003. The purpose of the first meeting was to write and review items for the examination, and the second meeting was to review and assemble new versions, or forms, of the examinations. The written subcommittee developed and reviewed 84 examination items while the practical subcommittee reviewed, revised and validated 14 practical problems, reviewed the item bank, made writing assignments for independent development, and conducted preliminary assembly of 2003 exams. The simulation committee reviewed and completed 5 new problems. At the assembly meeting, the committees focused on reviewing and validating the 2004 examination versions. In addition, the written committee reviewed, revised, and validated 115 items. Members of the practical committee reviewed, revised, and validated 8 practical problems, reviewed and revised 9 practical problems and reviewed 5 practical problems. The Written Simulation Committee reviewed, revised, and validated 1 problem, reviewed and revised 9 simulation problems, and continued development of 2 simulation problems.

Analysis of the Examination

Although each of the three parts of the BOC examinations makes a unique contribution to certification decision making, each is studied carefully to ensure that it adheres to psychometric principles that pertain. By adhering to these principles BOC ensures the examination is a valid and reliable measure of professional knowledge and skill.

Reliability

The table below reports reliability coefficients for all parts of the BOC's examination, including examinations administered between April 2003 and February 2004. The reliability computation for each examination is an estimate of the consistency of scores as a measure of competence. Internal consistency reliability is reported as the Kuder Richardson [KR(20)] coefficient and accounts for the degree to which items on the test contribute consistently to candidates' scores. The standard error of measurement provides the range in which the candidate's true score (if measured in absence of any error) resides.

Table I. Examination Reliability and Standard Error of Measurement (S.E.M)

	<i>Written</i>		<i>Practical</i>					<i>Simulation</i>				
Form #	331	332	324	325	327	330	324	328	329	333	329	333
Date			Apr	Jun	Aug	Nov	Feb	Apr	Jun	Aug	Nov	Feb
Reliability (KR20)	.81	.81						.91	.91	.89	.91	.90
Interrater Rel. % Agreement			.89	.88	.91	.88	.89					
Interrater Rel. Pearson's			.91	.91	.90	.89	.93					
S.E.M.	5.34	5.29						7.47	8.12	8.07	8.22	8.13

Candidate Performance on the Examination

A total of 5720 candidates (including both first-time candidates and those retaking parts of the examination) took the written multiple-choice part of the examination. 4231 candidates took the practical portion of the examination. Also, 4989 candidates took the simulation portion of the examination. The performance of the candidates on each examination type is presented in Table II below.

Table II. All Candidates Taking the Examinations

Exam	# Candidates	# Pass	% Pass	# Fail	% Fail
Written	5720	2545	44.49%	3175	55.51%
Practical	4231	2202	52.04%	2029	47.96%
Simulation	4989	2747	55.06%	2242	44.94%

The number of candidates taking the written examination for the first time in the 2003 testing year was 3007. Of those 56.47% passed. The practical portion was completed by 2853 candidates with 54.96% passing on that first attempt. Of the 3014 individuals taking the simulation examination for the first time in 2003, 58.96% passed. The performance of candidates taking the examination for the first time is presented below in Table III. This table also includes separate statistics for internship and curriculum candidates. Curriculum candidates completed a course of study approved by the Commission on Accreditation of Allied Health Education Programs order to achieve eligibility for the ATC® certification. Internship candidates achieved eligibility through completion of seven required courses, a supervised internship and various other requirements.

Table III. Candidates Taking the Examination for the First Time

Exam	Total Sitting	Total #/% Pass	Total #/% Fail	Total Intern	Intern #/% Pass	Intern #/% Fail	Total Curric	Curric #/% Pass	Curric #/% Fail
Written	3007	1698/ 56.47	1309/ 43.53	1470	693/ 47.14	777/ 52.86	1537	1005/ 65.39	532/ 34.61
Practical	2853	1568/ 54.96	1285/ 45.04	1392	620/ 44.54	772/ 55.46	1461	948/ 64.89	513/ 35.11
Simulation	3014	1777/ 58.96	1237/ 41.04	1468	770/ 52.45	698/ 47.55	1546	1007/ 65.14	539/ 34.86

As the table below shows, of the 2783 candidates sitting for the BOC examination for the first time, a total of 838, or 30.11%, passed all three examination parts.

Table IV. First Time Candidates Passing All Three Parts on First Attempt

	Total Sitting	Total Pass	Total Pass %	Total Fail	Total Fail %
Overall	2783	838	30.11%	1945	69.89%
Internship	1372	340	24.78%	1032	75.22%
Curriculum	1411	498	35.29%	913	64.71%

The written (multiple-choice) portion of the BOC examination was retaken by 2713 candidates, with 31.22% of them passing. 1378 individuals retook the practical portion of the examination, and 46.01%, or 634 of them, passed. The simulation portion of the examination was retaken by 1975 candidates. Of those, 49.11% passed. The performance of candidates retaking the BOC examination is presented in Table V.

Table V. Candidates Retaking the Examination

Exam	Total Sitting	Total #/% Pass	Total #/% Fail	Total Intern	Intern #/% Pass	Intern #/% Fail	Total Curric	Curric #/% Pass	Curric #/% Fail
Written	2713	847 / 31.22	1866 / 68.78	2012	546 / 27.14	1466 / 72.86	701	301 / 42.94	400 / 57.06
Practical	1378	634 / 46.01	744 / 53.99	886	326 / 36.79	560 / 63.21	492	308 / 62.60	184 / 37.40
Simulation	1975	970 / 49.11	1005 / 50.89	1319	596 / 45.19	723 / 54.81	656	374 / 57.01	282 / 42.99

Descriptive Statistics of Candidate Performance

Table VI presents various descriptive statistics for each form of the BOC examination. Scores ranged from 48 to 136 (out of 140 scored items) on Form 331 of the written examination and 58 to 140 for form 332. The high score on each form of the Practical portion of the examination was 46 for every form except 324, for which it was 49.

Table VI. Candidate Scores

	Written Form 331	Written Form 332
High Score	136	140
Low Score	48	58
Avg. Score – Overall	103.14	103.96
Avg. Score – Internship	100.69	101.23
Avg. Score – Curriculum	106.90	107.44
Std. Dev	12.18	12.00

	Practical Form 324	Practical Form 325	Practical Form 327	Practical Form 330
High Score	49	46	46	46
Low Score	2	5	1	1
Avg. Score – Overall	34.45	32.92	33.61	33.23
Avg. Score – Internship	31.85	31.27	32.48	32.29
Avg. Score – Curriculum	36.81	34.65	35.57	35.05
Std. Dev	6.89	6.77	6.52	6.87

	Simulation Form 328 April 2003	Simulation Form 329 June 2003	Simulation Form 333 August 2003	Simulation Form 329 Nov. 2003	Simulation Form 333 Feb. 2004
High Score	723	724	767	762	739
Low Score	200	200	200	200	200
Avg. Score – Overall	500.82	501.66	501.03	501.34	501.07
Avg. Score – Internship	465.20	484.83	491.34	490.40	493.10
Avg. Score – Curriculum	524.78	520.15	516.44	521.18	518.98
Std. Dev	98.94	95.68	97.94	96.82	97.92

Descriptive statistics were reported in detail at to the domain level for the written examination and are presented in Table VII, first for form 331 and then separately for form 332.

Table VII. Domain Scores for Written Examination Form 331 and 332

	Form 331 - Domain 1	Form 331 - Domain 2	Form 331 - Domain 3	Form 331 - Domain 4	Form 331 - Domain 5	Form 331 - Domain 6
Number of Items	21	33	28	31	15	12
High Score	20	32	28	31	15	12
Low Score	3	7	6	5	1	0
Avg. Score – Overall	14.15	22.33	19.39	18.99	10.92	8.30
Avg. Score – Internship	13.99	21.62	19.02	18.26	10.70	8.04
Avg. Score – Curriculum	14.39	23.43	19.95	20.10	11.25	8.68
Std. Dev	2.37	4.23	3.26	3.97	1.94	1.93

	Form 332 - Domain 1	Form 332 - Domain 2	Form 332 - Domain 3	Form 332 - Domain 4	Form 332 - Domain 5	Form 332 - Domain 6
Number of Items	21	33	28	31	15	12
High Score	20	32	28	30	15	12
Low Score	5	5	3	6	3	2
Avg. Score – Overall	13.95	21.63	18.72	18.91	11.79	8.10
Avg. Score – Internship	13.79	20.85	18.34	18.23	11.68	7.85
Avg. Score – Curriculum	14.20	22.86	19.32	19.98	11.96	8.52
Std. Dev	2.36	4.33	3.18	3.87	1.83	1.88

Conclusion

BOC works diligently to ensure that the certification examinations and all aspects of its development and administration are fair and of high quality. In addition, the testing program has a strong foundation for content validity and psychometric function to protect the public. The organization adheres to pertinent standards governing certification tests and implements an examination program that continues to be a valid and reliable measure of entry-level competence in the profession. Only candidates who truly demonstrate competence are successful in achieving certification.